

Application Serial No. 10/655,206
Reply to Office Action of November 18, 2004

PATENT
Docket: CU-3354

Amendments To The Claims

The listing of claims presented below will replace all prior versions, and listings, of claims in the application.

Listing of claims:

1. **(currently amended)** A semiconductor package device comprising:
 - a semiconductor chip including a plurality of bonding pads having a microscopic size and aligned at a minute interval;
 - a first planar layer formed on the semiconductor chip ~~so as to expose the~~ bonding pads;
 - a second planar layer formed on the first planar layer;
 - an oxide layer made of polyimide based material formed on the second planar layer, wherein the bonding pads are exposed through openings in the first planar layer, the second planar layer, and the oxide layer;
 - a seed metal layer formed on the oxide layer, on the first and second planar layers exposed in the openings, and on the bonding pads exposed through the openings;
 - metal patterns formed on the seed metal layer,
 - wherein each metal pattern is electrically connected to one of the bonding pads,
 - wherein the area of each metal pattern on the oxide layer is larger than the area of the bonding pad to which the

Application Serial No. 10/655,206
Reply to Office Action of November 18, 2004

PATENT
Docket: CU-3354

metal pattern is electrically connected, and

wherein the oxide layer relieves stress on each bonding

pad applied through the electrically connected metal pattern.

~~the planar layer and having a size larger than a axis of the bonding pads in such a manner that at least some parts of the metal patterns are connected to the bonding pads; and~~

~~a seed metal layer interposed between the planar layer and the metal patterns.~~

2. ~~(cancelled) The semiconductor package device as claimed in claim 1, wherein an oxide layer is interposed between the planar layer and the seed metal layer in order to release stress applied thereto.~~
3. (original) The semiconductor package device as claimed in claim 1, wherein a total thickness of the metal patterns and the seed metal layer is about 1 to 10 μ m.
4. (original) The semiconductor package device as claimed in claim 1, wherein the seed metal layer has a triple stack structure including Ti-NiV-CU layers.
5. (original) The semiconductor package device as claimed in claim 1, wherein the bonding pads have a size of 10x10/ μ m in width and length.
6. (original) The semiconductor package device as claimed in claim 1, wherein the metal patterns include an Al-Ag alloy or a Cu-Ag alloy.
7. (original) The semiconductor package device as claimed in claim 1, wherein the metal patterns are aligned in left and right directions or upward and downward directions about the bonding pads.
8. (original) The semiconductor package device as claimed in claim 1, wherein the

Application Serial No. 10/655,206
Reply to Office Action of November 18, 2004

PATENT
Docket: CU-3354

metal patterns are alternately aligned one by one in a zigzag manner in left and right directions or upward and downward directions about the bonding pads.

9. **(currently amended)** The semiconductor package device as claimed in claim 1 ~~claim 9~~, wherein the metal patterns are inclined with a predetermined angle.

10. **(currently amended)** A semiconductor package device comprising:

a semiconductor chip including a plurality of bonding pads having a microscopic size and aligned at a minute interval;

a first planar layer formed on the semiconductor chip and having an opening for exposing the bonding pads;

a second planar layer formed on the first planar layer;

an oxide layer made of polyimide based material formed on the second planar layer, wherein the bonding pads are exposed through openings in the first planar layer, the second planar layer, and the oxide layer;

a seed metal layer formed on the oxide layer, on the first and second planar layers exposed in the openings, and on the bonding pads exposed through the openings;

metal patterns formed on the seed metal layer,

wherein each metal pattern is electrically connected to one of the bonding pads,

wherein the area of each metal pattern on the oxide layer is larger than the area of the bonding pad to which the metal pattern is electrically connected,

Application Serial No. 10/655,206
Reply to Office Action of November 18, 2004

PATENT
Docket: CU-3354

wherein the oxide layer relieves stress on each bonding pad applied through the electrically connected metal pattern,
and
wherein the seed metal layer and the metal pattern is capable of being aligned in the left or right or up or down directions with respect to the electrically connected bonding pad.

~~a seed metal layer and metal patterns sequentially formed on the planar layer and having a size larger than a size of the bonding pads in such a manner that at least some parts of the seed metal layer and metal patterns are connected to the bonding pads, the seed metal layer and metal patterns being aligned in left and right directions or upward and downward directions about the bonding pads;~~
and

~~an oxide layer interposed between the planar layer and the seed metal layer in order to release stress applied thereto.~~

- 11 (original) The semiconductor package device as claimed in claim 10, wherein the metal patterns include an Al-Ag alloy or a Cu-Ag alloy.
12. (original) The semiconductor package device as claimed in claim 10, wherein the seed metal layer has a triple stack structure including Ti-NiV-CU layers.
13. (currently amended) A semiconductor package device comprising:
a semiconductor chip including a plurality of bonding pads having a microscopic size and aligned at a minute interval;
a first planar layer formed on the semiconductor chip and having an

Application Serial No. 10/655,206
Reply to Office Action of November 18, 2004

PATENT
Docket: CU-3354

~~opening for exposing the bonding pads;~~

a second planar layer formed on the first planar layer;

an oxide layer made of polyimide based material formed on the second planar layer, wherein the bonding pads are exposed through openings in the first planar layer, the second planar layer, and the oxide layer;

a seed metal layer formed on the oxide layer, on the first and second planar layers exposed in the openings, and on the bonding pads exposed through the openings;

~~a seed metal layer and metal patterns sequentially formed on the planar layer and having a size larger than a size of the bonding pads in such a manner that at least some parts of the seed metal layer and metal patterns are connected to the bonding pads,~~

metal patterns formed on the seed metal layer,

wherein each metal pattern is electrically connected to one of the bonding pads,

wherein the area of each metal pattern on the oxide layer is larger than the area of the bonding pad to which the metal pattern is electrically connected,

wherein the oxide layer relieves stress on each bonding pad applied through the electrically connected metal pattern,
and

wherein the seed metal layer and metal patterns being

Application Serial No. 10/655,206
Reply to Office Action of November 18, 2004

PATENT
Docket: CU-3354

alternately aligned one by one in a zigzag manner in left and right directions or upward and downward directions about the bonding pads; and

~~an oxide layer interposed between the planar layer and the seed metal layer in order to release stress applied thereto.~~

14. (original) The semiconductor package device as claimed in claim 13, wherein the seed metal layer and metal patterns are alternately aligned while forming a slightly inclined angle.

15. (withdrawn) A method for fabricating a semiconductor package device, the method comprising the steps of:

providing a semiconductor chip including a plurality of bonding pads having a microscopic size and aligned at a minute interval;

forming a planar layer on the semiconductor chip to expose the bonding pads;

forming a seed metal layer on an entire surface of a substrate having the planar layer;

forming solder resist patterns on the seed metal layer such that at least some parts of the solder resist pattern exposes the bonding pads;

forming metal patterns for exposing the solder resist pattern while filling a gap formed between the solder resist patterns;

removing the solder resist patterns; and

etching the seed metal layer by using the metal pattern as a mask.

16. (withdrawn) The method as claimed in claim 15, further comprising a step of

Application Serial No. 10/655,206
Reply to Office Action of November 18, 2004

PATENT
Docket: CU-3354

Interposing an oxide layer between the planar layer and the seed metal layer to release stress applied thereto.

17. (withdrawn) The method as claimed in claim 15, wherein the solder resist patterns are formed to be thicker than the metal patterns by 1 to 1.7 times.

18. (withdrawn) The method as claimed in claim 15, wherein the seed metal layer is formed by sequentially stacking Ti, NiV and Cu layers.